COMNAVSAFECEN 2005 Aviation Maintenance Safety Conference

EMI/ESD/ASEMICAP

Mr. Robert Tate

Air Systems Electromagnetic Interference Corrective Action Program

AIR 4.9.5.1

(ASEMICAP)



EMI - The Issue



Electromagnetic Environmental Effects (E³) issues are impacting system performance and mission readiness.



What Are Electromagnetic Environmental Effects



Electromagnetic **Environmental** Effects are unwanted phenomena, natural or manmade, which can impact system performance and or mission readiness.



EMI Examples

- E-2C RadAlt (03856)
- F-18 LATR (03731)
- P-3C AN/AAR-47 (04168)

- H-60 Chip Lights (03770)
- H-60 ELT (03775)
- H-60 MTMU (04167)

H-60 Chip Lights

- Problem Number (03770)
 - Problem reported from Fleet via EMI HAZREP
 - (TGB) Chip Lights Each Cleared within 30 seconds. Both were experienced on starboard take offs with the Air Search Radar active
 - EMI HAZREP for CHIP Lights (021548Z APR 03)
 - Impact
 - Mission degradation
 - Wasted maintenance man hours
 - False chip lights causing crew distraction and leading to a lack of confidence in the system
 - ASEMICAP Response
 - Testing revealed chip detector "BIT" vulnerability
 - Developed and evaluated solutions.
 - Recommendations resulted in AFC-219 installing EMI filtering pending wiring change
 - AGB Chips currently under investigation



P-3C AAR-47

- Problem Number (04168)
 - Problem reported from Fleet
 - The AN/APS-137 in Ground and Air mode interferes electromagnetically with the forward AAR-47 sensor
 - Impact
 - False missile warnings causing crew distraction an leading to a lack of confidence in this critical system
 - ASEMICAP Response
 - Examined installation & tested sensor
 - ID'd coupling mechanism & characterized vulnerabilities
 - Developed and evaluated solutions
 - Fix in work



H-60 MTMU

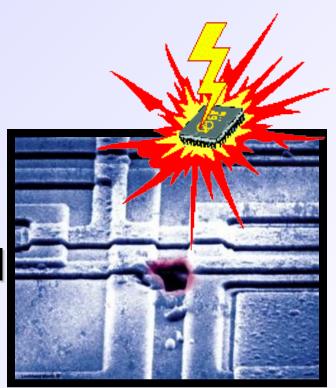
- Problem Number (04167)
 - Deployed Fleet unit submits problem
 - While attempting to load digital data computers from the MTMU the process fails repeatedly on deck
 - This process works fine in the hanger
 - Impact:
 - Degraded mission readiness and excessive maintenance due to poor performance in operational EME
 - Resolution:
 - ECP 112R2 (AFC 29) had corrected this by installation of an EMI shielding gasket. Information provided to affected unit and corrective action taken.
 - Problem resolved



ESD - The Issue

ESD negatively impacts system performance, and ultimately readiness, in three significant ways:

- Readiness (reduced avail
- Unnecessary and/or excessive maintenance
- Increased ownership costs





AIRCRAFT TECHNOLIGY CONTINUES TO LEAP FORWARD

We must change our mindset with regard to ESD!

Joint Strike Fighter (JSF)

Currently requires the Organization Level Maintainer to primarily handle the Shop Replaceable Assembly (SRA) when conducting routine maintenance.

ASEMICAP ESD TOP FIVE

ESD TRAINING

Supply, Mat. Cont, & Technician must train and understand the ESD program CSEC 2402C, 8203D

ESD BENCH

What happened to the ESD MRC decks? CSEC 2411C, 8201D

ESDS LISTING

Where do I get my aircraft ESDS listing?
CSEC 2419C

ESD TAPE

The Good, Bad, and the Ugly CSEC 24O4C, 8205D



OVERSIGHT

Audits & reviews must be effective CSEC 2414C, 8204D



WWWASEM

ESD Tape

Per the NAMP, ESD tape is not a substitute for the use of ESD Caps. ESD tape is authorized short term protection that does not present a FOD hazard.



- ✓ Not to be used for long term storage of ESDS items.
- ✓ Used for short term protection
 of ESDS items when transiting



ESD Workstation Concerns

- MRC deletion and Local MRC's
- ESD Bench Grounding
- ESD Portable Workstation



Training

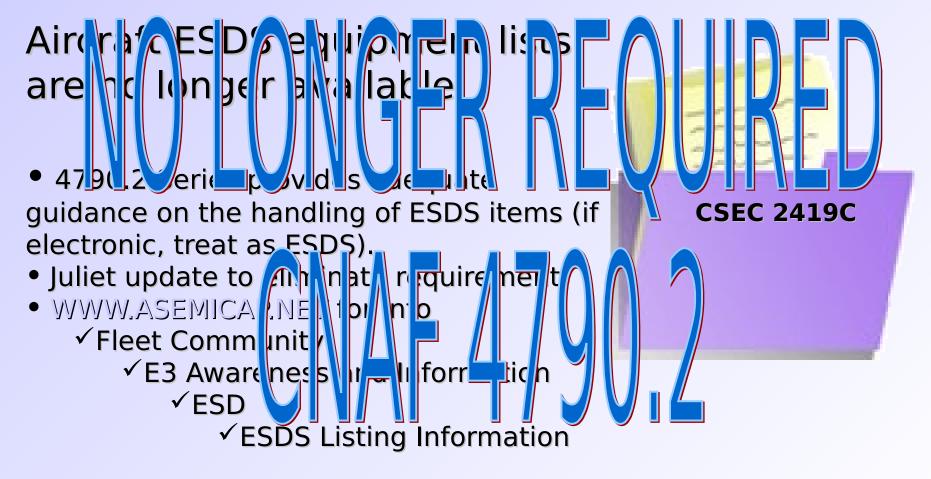
EMI/ESD training is an essential part of an effective EMI/ESD program.

- Available to Fleet activities at no cost
- ESD workcenter training needs

be focused

All training needs to he "
 Real" training

ESDS Lists

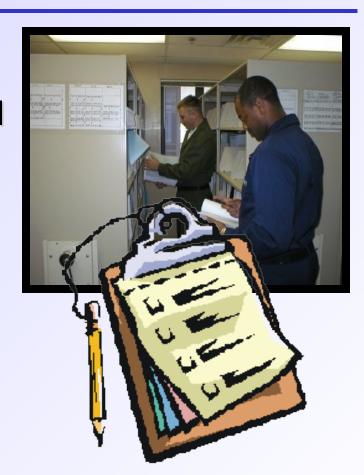




ESD Program Oversight

ESD auditing is important!

- "Effective auditing is an essential part of an excellent ESD Control Program" (NARTE)
 - √ Validates Procedures & Products
 - ✓ Defines responsibilities & reinforces importance
 - ✓ Provides program feedback
- ESD auditing by Quality
 Assurance, ESD Program Managers and Users must be completed and enforced.





ASEMICAP = Fleet Support

Two specific objectives:

- 1. Direct engineering/technical support to resolve Fleet E³ issues.
- 2. Improved Fleet E³
 awareness of Navy and
 Marine Corps Aviation
 activities.

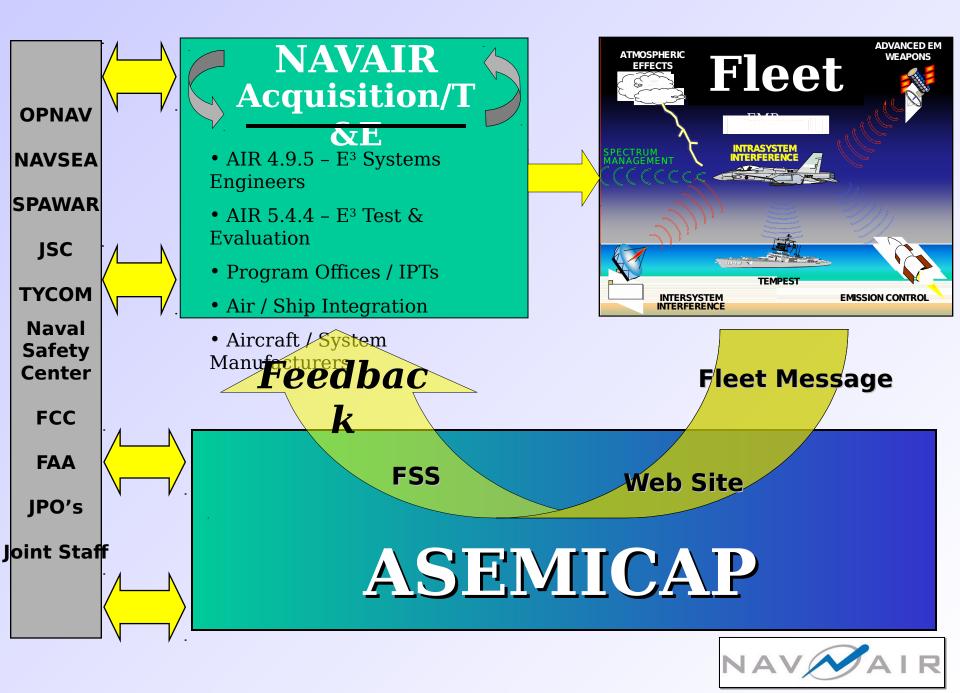




You're from NAVAIR and here to help!!







MMM ΔSFM

Fleet Support Specialists (FSS)



Dave Willis 504-678-5873



WWWASFM

E³ Awareness Presentations

TYCOM supported deck plate

training provided by former Fleet personnel with Naval Aviation maintenance and E³ expertise.



Topics include:

ESD, EMI, P-Static, and Cockpit EMI

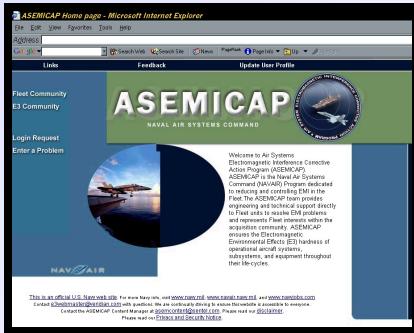


WWW.ASEMICAP.NET

24/7 resource for E³-related information and support.

Highlights:

- Problem database
- E³ awareness materials
- Support/feedback
- Related links & library
- ASEMICAP Newsletter



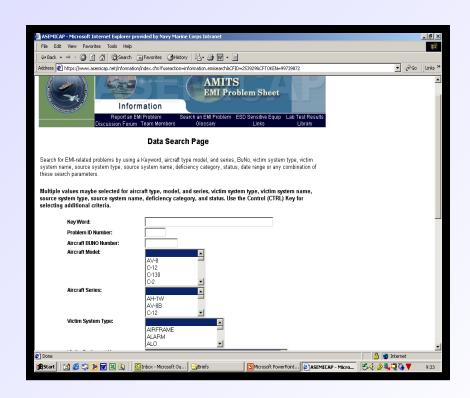


Problem Management System

Web-based data mgmt tool for collection and processing E³ issues.

Basic & advanced sort By T/M/S or keyword.

Not a registered user? Quick registration (a few minutes from a .mil).





Now Hear This

CNAF 4790.2 released

Chapter 22

-EMI/ESD Program

-EMI/ESD training is available to you today!



Ok, you side-steppin beach creature, I'm listenin ... so, what's the bottom line?





Summary

 Electromagnetic Environmental Effects occur and DO have a very real operational impact.

 Negative effects CAN be mitigated in most cases.

 ASEMICAP is the Fleet's resource for E3 support.

YOU ARE THE KEY!!







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